

**Before the
Department of Commerce
National Telecommunications and Information Administration
and
Department of Agriculture
Rural Utilities Service
The American Recovery and Reinvestment Act of 2009
Broadband Initiatives
Docket No. 090309298-9299-01**

Expand Networks hereby comments on the Joint Request of Information (“Joint Request”) of the Department of Commerce, National Telecommunications and Information Administration (“NTIA”) and the Department of Agriculture, Rural Utilities Service (“RUS”), published in the Federal Register on March 12, 2009 seeking public input on Section 6001 of the American Recovery and Reinvestment Act of 2009 (the “Act”).

Expand Networks, Inc. comments that BTOP grants and RUS loan programs should encourage the use of emerging technologies, such as Wide Area Network (WAN) Optimization technologies, to improve immediately the performance of existing networks in under-served and unserved communities by creating virtual bandwidth capacity and enabling the prompt implementation of broadband-dependent services and applications with a minimum of additional infrastructure. Leveraging existing infrastructure through virtual broadband is one of the most simulative, rapid, and cost effective ways to increase broadband capacity and usage for economic, public safety, educational, and social activities while bridging the transition period as planned, new infrastructure is built-out in the coming years.

Where bandwidth is otherwise inadequate to support business, public safety communications, distance learning, telemedicine and other broadband-dependent services, virtual bandwidth, created by WAN Optimization technologies, can enable robust broadband application performance, even where link speeds are 128kbps or lower.¹

What is broadband? Is it a measure of bandwidth speed or “an experiential metric based on the consumer’s ability to access sufficiently robust data for certain identifiable broadband services”?² Expand Networks comments that bandwidth speed is not a definition of broadband – bandwidth speed describes a data rate - not how well a network supports specific applications. Rather, broadband should be defined by the ability of a network to enable a user to experience

¹ See attached Comments and Ex Parte submissions of Expand Networks, Inc. to the Federal Communications Commission (FCC), including the Summary of Expand Networks, Inc. April 1, 2009 *Ex Parte* Meeting submitted pursuant to DA 09-668, GN Docket No. 09-40, Expand Networks comments regarding the definition of ‘Broadband’ in Expand Networks submission pursuant to DA 09-561, GN Docket No. 09-29, Expand Networks April 3, 2009 Additional Comments on Rural Broadband Strategy and Expand Networks April 3, 2009 Summary of Meeting and Definition of Broadband

² In the Matter of A National Broadband Plan for Our Future, FCC 09-31, GN Docket No. 0951 paragraph 17 (April 8, 2009).

voice, video, data transfer, and other applications operating simultaneously and smoothly over a wide area network – regardless of the location of the network.³

By increasing network capacity with virtual bandwidth, WAN Optimization technologies increase the value of network investment, by lowering network operating and recurring costs, while simultaneously enabling greater network access and usage with faster application performance. The financial benefits of WAN Optimization technologies are especially pronounced for the delivery of broadband over wireless and satellite networks where the financial return on investment is most dramatic.

To further clarify this point, Expand Networks refers to Alphastar comments of April 11, 2009, which propose a broadband service based on satellite backhaul – the ‘middle mile’ – with WiMax for ‘the last mile.’ Such an immediately deployable and hybrid broadband solution could be more affordable by integrating WAN optimization technologies which would increase backhaul capacity, enable more end-users to experience the network and lower the cost of satellite bandwidth. By mitigating the effects of latency, increasing the virtual bandwidth, lowering operating and recurring costs, the wireless/satellite networks deliver broadband service while becoming affordable to a larger number of end-users. Such a deployment could support distributed business enterprises, public safety communications operations, distance learning, telemedicine, or any other broadband service.

On March 10, 2009, Secretary of Agriculture Vilsack stated the importance of leveraging resources beyond the \$2.8Billion granted by the ARRA. Expand Networks respectfully submits that an exemplary way to so leverage the taxpayer’s investment in broadband and bring the benefits of broadband to unserved and underserved parts of the United States rapidly is to favor proposals that incorporate emerging technologies, such as WAN Optimization, into their bids, thus benefiting businesses, consumers and service providers alike. No technology, other than WAN Optimization technology, offers more bang for the buck when it comes to expanding and optimizing the capabilities of satellite and wireless networks.

³ During Hurricane Katrina, for instance, Expand Networks deployed WAN Optimization devices to American Red Cross emergency response centers in Louisiana, Texas and Alabama thereby quadrupling the number of simultaneous VoIP calls while maintaining other electronic communications without interruption. However inadequate the emergency communications capabilities during Hurricane Katrina, where Expand was deployed the Red Cross was able to meet its communications requirements with a virtual broadband capability enabled by Expand accelerators. In Iraq and Afghanistan today, internet cafes with WAN Optimized satellite links host 3 – 4 times the users than those cafes operating non-optimized links. Although these internet cafes have uplink bandwidth of 2Mbps, due to latency, the effective throughput is reduced to 1Mbps and a consequent reduction in the useable bandwidth. But with WAN optimization enabled, this satellite link behaves like a 4Mbps connection, significantly increasing the virtual capacity available to the café. Application performance improves and more users can be on line simultaneously.